Ropin' the Wind

We can hog-tie it, but can we release the energy later when we really need it?

Abstract: Storing energy is nearly as important as capturing it, and LANL is making progress.

Can the same strong blast of wind that keeps tumbleweeds in motion someday heat or cool homes, and power automobiles? Bet your BTUs, say two Los Alamos National Laboratory researchers.

David Thorn and Albert Migliori are walking along a scientific pathway they hope will one day enable the long-term storage of energy produced by good, old-fashioned prairie wind.

"The world uses about 17 trillion joules of energy every second," Thorn says, "and that rate is likely to double by 2050." To bring that figure down to a domestic level, a 60-watt light bulb in our home has a flow of 60 joules of energy a second.

"We are going to need energy, and lots of it," says Thorn. "Simply burning more coal and oil isn't a solution. Not only are oil supplies dwindling, but the carbon dioxide that's emitted is driving deep concerns over climate change."

What if we could not only harness a 20-mile-per-hour wind, but hold its energy for use when we need it the most? With a storage capability, we could effectively keep the spring winds in reserve and use the energy for cooling our homes during the sizzle of summer.

"There are minutes in New Mexico when 25 percent of our power comes from wind farms, more than 200 million watts from wind power, says Migliori. "There's enough energy produced by New Mexico wind farms in March and April to run a utility grid for weeks without turning on a coal or nuclear plant."

The scientific stumbling block: sufficient storage. "We need revolutionary changes," Thorn says.

So, Los Alamos' scientists are gearing up to develop new high-capacity energy storage technologies and components. "What if every house had a little bit of electrical storage capacity, say a bank of batteries that sat in a box beneath the electric meter?" asks Migliori. Or, each vehicle had a battery capable of storing enough energy to wave bye-bye to a few gas stations along the road of life.

Transferring the power produced by windmill turbine blades into battery storage units is not so space-age, the Los Alamos pair insists. Today's winds may blow us into a solution for tomorrow's burning energy problems. And that would be very cool.